




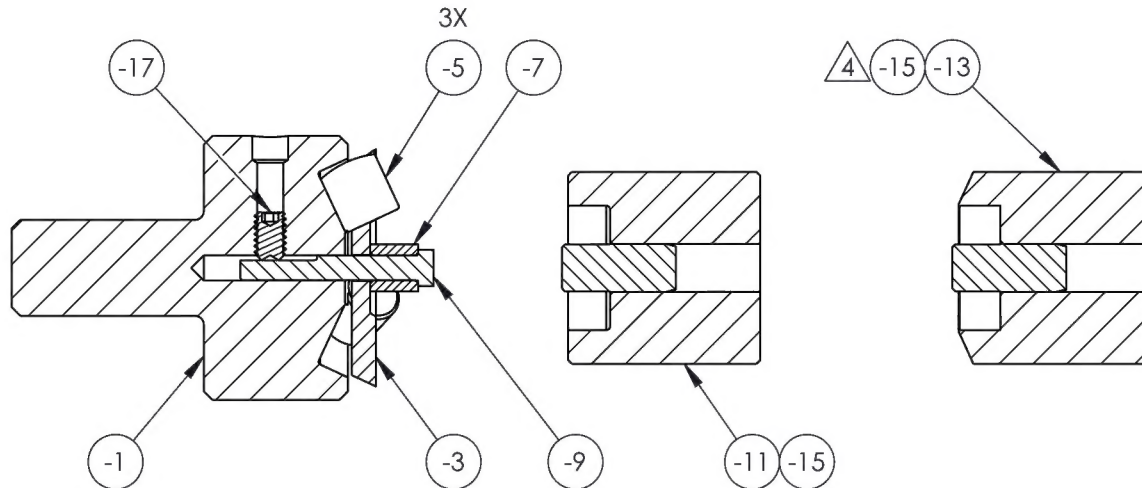


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BEARINGS & TOOLS COVERED

BEARING #	TOOL #
209-001-055-1	RBST2001
206-010-470-101	RBST2012
214-010-711-1	RBST2014
210-010-710-1	RBST2015
214-010-712-11	RBST2017
RDW-5T-3V	RBST2020
222-312-702-103	RBST2058
222-312-702-105	RBST2059
222-312-754-101	RBST2089

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s KST2014 & 2015 & 2017. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE, -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012, AND MADE -9 A VARIABLE LENGTH, WS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST 2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010, TO .015 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE, REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW Ø.577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE OF CLEARANCE ISSUES WITH BEARING. ALSO ADDED REV. LOG TO EACH PAGE.	6/17/2013	WP	-
7		-1 CH'D TOL.(H) WAS +/- .002 IS +/- .005.	6/17/2013	BIM	GE
8	16-0122	UPDATED TO NEW STANDARDS. ADDED  TO ASSEMBLY. -1 REMOVED NOTE 1, MAT'L DIMENSIONS, & DIM ØD. CH'D DIM WAS ØC IS (ØC); WAS #8-32 UNC THRD LENGTH 3/8 MIN. C-BORE Ø.187 DEPTH OPTIONAL IS 8-32 UNC - 2B THRU  Ø.187  .13. -3 REMOVED MATERIAL DIMENSIONS; REMOVED DIM'S ØB, C, ØE, & ØL FROM RETAINER, TYPE II. CH'D GD&T WAS  .005 A&B E&M IS  .005 A M. -5 CH'D DIM WAS (R) C SPHER. IS SR C; CH'D TABLE WAS MATERIAL IS B/O INFORMATION OR SPECIFICATIONS. -7 REMOVED NOTE 1 & MATERIAL DIM'S; REPLACED VIEW WITH SECTION VIEW G-G. -9 REMOVED NOTE 1; CH'D TABLE WAS MATERIAL IS B/O INFORMATION OR SPECIFICATIONS. -11 REMOVED NOTE 1; CH'D DIM WAS Ø.249 IS .2506/.2500 (P.F. -15), WAS .030/.010x45° (x2) IS 2X .02 X 45°, WAS .020/.010x45° (x2) IS .015 X 45°; CH'D MATERIAL WAS 4140 Q&T IS 4140/4142, RC 28-34. -13 REMOVED NOTE 1; CH'D DIM WAS REAM Ø.249 P.F. -15 IS Ø.2506/.2500 (P.F. -15), WAS .020/.010x45° IS .015 X 45°, WAS .030/.010x45° (x2) IS .02 X 45°. -15 REMOVED NOTE 1, MATERIAL DIMENSIONS; CH'D DIM WAS Ø.250 P.F. -11 & -13 IS Ø.2514/.2510 (P.F. -11, -13), WAS .020/.010x45° IS .015X45°; CH'D MATERIAL WAS 1018 IS 1018/1020 CR.	8/15/2016	SM	JAG



NOTES:

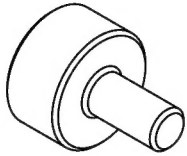
- 5 ROLLERS MUST TURN FREELY IN -3 RETAINER POCKETS.
- 5 ROLLERS & -3 RETAINER MUST TURN FREELY WHEN TOOL IS COMPLETELY ASSEMBLED.
- FLAT END OF ROLLERS MUST FACE TOWARDS THE CENTER OF THE TOOL WHEN ASSEMBLED.

 NOT INCLUDED IN RBST2014 OR RBST2015.

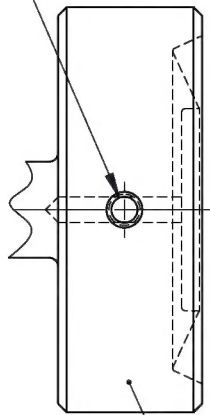
ASSY QTY	ASSY QTY	B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
			-1	1	ROLLER FIXTURE	SEE TABLE 1	SEE TABLE 1	1
			-3	1	RETAINER, TYPE I	SEE TABLE 2	SEE TABLE 2	2
			-5	3	ROLLER	SEE TABLE 3	SEE TABLE 3	3
			-7	1	GUIDE	SEE TABLE 4	SEE TABLE 4	4
			-9	1	PIN	SEE TABLE 5	SEE TABLE 5	5
			-11	1	PRIMARY SEAT	SEE TABLE 6	SEE TABLE 6	6
			-13	SEE TABLE 7	SECONDARY SEAT	SEE TABLE 7	SEE TABLE 7	7
			-15	SEE TABLE 8	LOCATING PIN, TYPE I	SEE TABLE 8	SEE TABLE 8	8
		B/O	-17	1	SOCKET HEAD SET SCREW	STEEL	#8-32 X 1/4 (MCMASTER-CARR # 91375A190)	1

TITLE		REV	
RBST2000 SERIES TRI-ROLLER SWAGING TOOL		8	
DWG NO.		REV	
RBST20##		8	
MAT'L		UNLESS OTHERWISE SPECIFIED	
HEAT TREAT		DIMENSIONS ARE IN INCHES	
FINISH		.XXX ± .005 FRACTIONS ± 1/8	
SPEC		.XX ± .01 ANGLES ± 5°	
DRAWN BY:		.X ± .1 SURFACES = 125/	
CHECKED:		1. BREAK ALL SHARP EDGES	
OPPS APPR:		.015 x 45° OR .015R	
QA APPR:		2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
APPROVED:		3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009	
SCALE		USED ON MODEL	
1:1		SEE BEARINGS & TOOLS COVERED	
DATE		3/28/2008	
SHEET 1 OF 9			

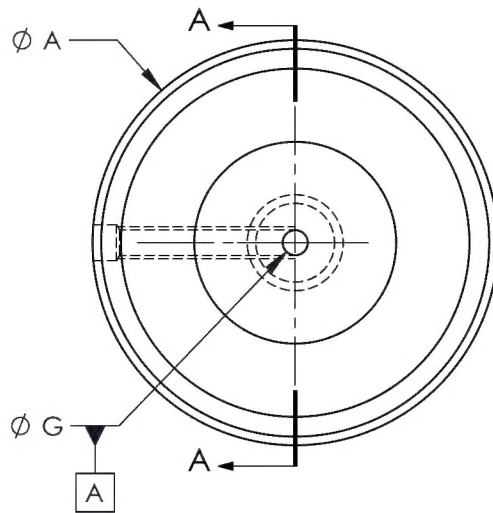
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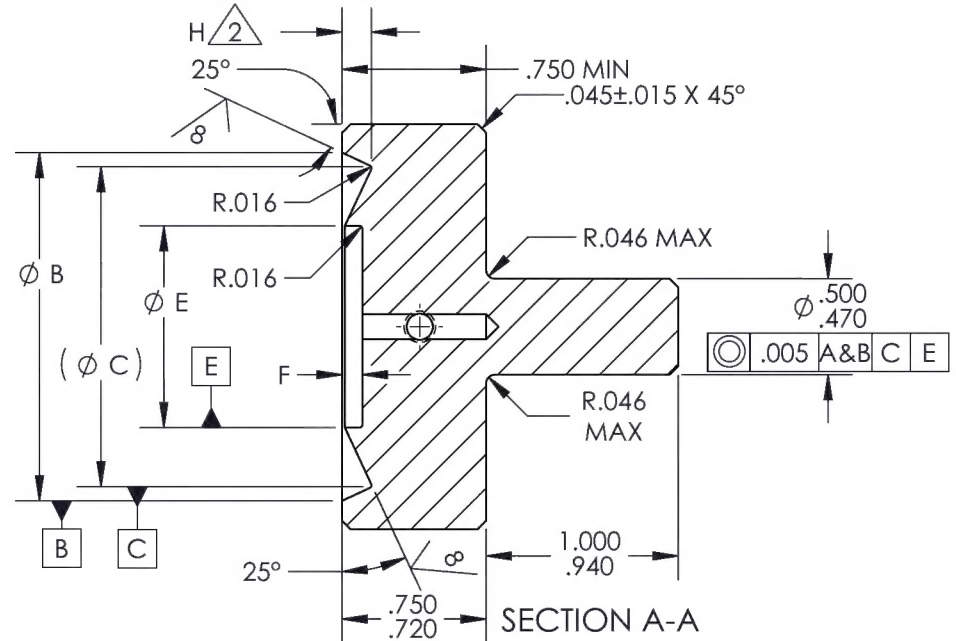
8-32 UNC - 2B
 \square ϕ .187 ∇ .13



ENGRAVE T/N, S/N,
 "MADE IN USA"



REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'S KST2014 & 2015 & 2017. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE, -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012, AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010, TO .015 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE. REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ϕ E, WAS ϕ .557 NOW .577; AND ϕ L, WAS ϕ .492, NOW ϕ .520; BECAUSE OF CLEARANCE ISSUES WITH BEARING.	11/10/2009	WP	-
7		-1 CH'D TOL. (H) WAS +/- .002 IS +/- .005.	6/17/2013	BIM	GE
8	16-0122	-1 REMOVED NOTE 1, MAT'L DIMENSIONS, & DIM ϕ D. CH'D DIM WAS ϕ C IS (ϕ C); WAS #8-32 UNC THRD LENGTH 3/8 MIN. C-BORE ϕ .187 DEPTH OPTIONAL IS 8-32 UNC - 2B THRU \square ϕ .187 ∇ .13.	8/15/2016	SM	JAG



NOTES:

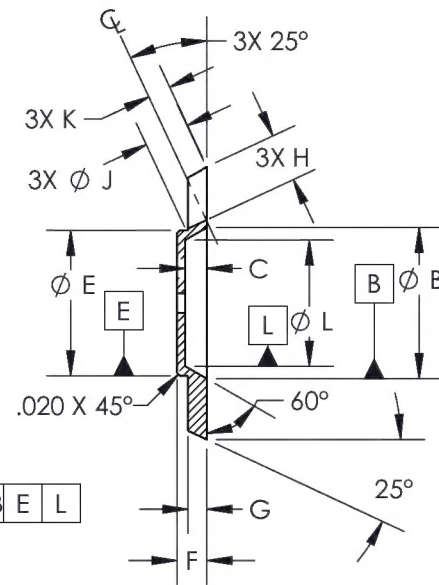
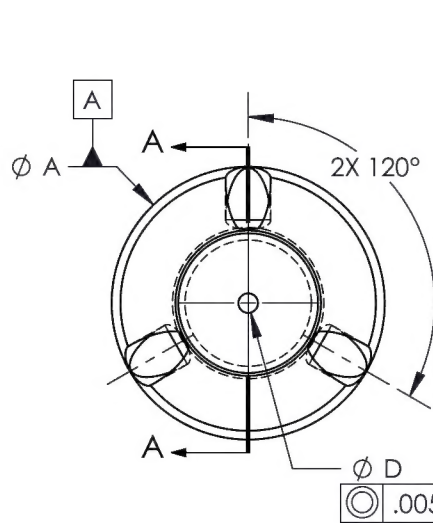
- \triangle 2 DIMENSION TO BOTTOM OF R.016 = H DIM.; DIMENSION TO SHARP CORNER = HDIM. + .005.
- 1 BEARING RACE SURFACES MUST HAVE SMOOTH APPEARANCE FREE FROM MACHINING MARKS AND GROOVES.
- DO FIRST ARTICLE INSPECTION BEFORE HEAT TREATING.

TABLE 1							
TOOL #	ϕ A	ϕ B	(ϕ C)	ϕ E	F	ϕ G	H
	.000	.000	.000	.000	.000	.000	.000
	.000	.000	.000	.000	.000	.000	.000
RBST2001	1.375	1.141	.993	.386	.016	.131	.153
RBST2012	1.375	1.179	1.031	.607	.149	.131	.153
RBST2014	2.110	1.890	1.716	.919	.000	.131	.181
RBST2015	2.110	1.814	1.666	1.051	.106	.131	.153
RBST2017	1.750	1.429	1.281	.675	.016	.131	.153
RBST2020	1.500	1.276	1.128	.521	.016	.131	.153
RBST2058	1.500	1.205	1.057	.450	.016	.131	.153
RBST2059	1.625	1.330	1.182	.576	.016	.131	.153
RBST2089	1.750	1.431	1.283	.676	.016	.131	.153

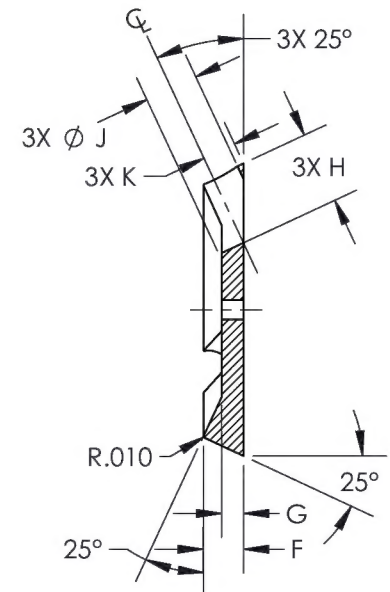
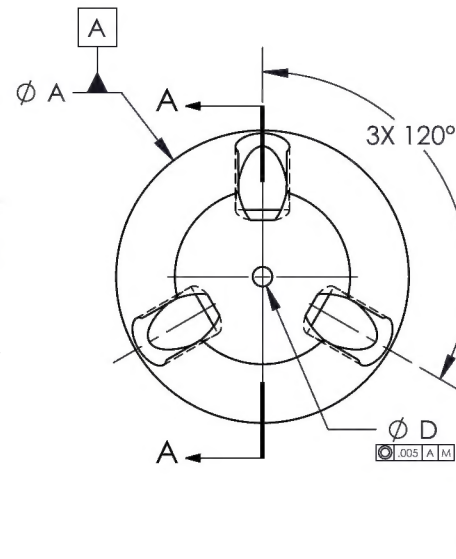
DART AEROSPACE		
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL		
DWG NO. TOOL # (SEE CHART)-1		REV 8
MAT'L RC 55-60		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS \pm 1/8
HEAT TREAT FINISH		.XXX \pm .005 .XX \pm .01 .X \pm .1
SPEC		ANGLES \pm 5° SURFACES = 125
DRAWN BY: PERRITT		1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
CHECKED: DUERFELDT		2. DIMENSIONAL LIMITS APPLY AFTER PLATING
OPPS APPR: ANDERSON		3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
QA APPR: LINDSAY		USED ON MODEL
APPROVED: GILBERT		SEE PG. 1
SCALE 1:1	DATE 3/28/2008	SHEET 2 OF 9

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s SKT2014 & 2015 & 2017. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE, -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012, AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010, TO .0155 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE. REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW Ø.577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE OF CLEARANCE ISSUES WITH BEARING.	11/10/2009	WP	-
8	16-0122	-3 REMOVED MATERIAL DIMENSIONS; REMOVED DIM'S ØB, C, ØE, ØL, & ØM FROM RETAINER, TYPE II. CH'D GD&T WAS $\text{Ø} .005 \text{ A \& B E L M}$ IS $\text{Ø} .005 \text{ A M}$.	8/16/2016	SM	JAG



(-3)
RETAINER, TYPE I



(-3)
RETAINER, TYPE II

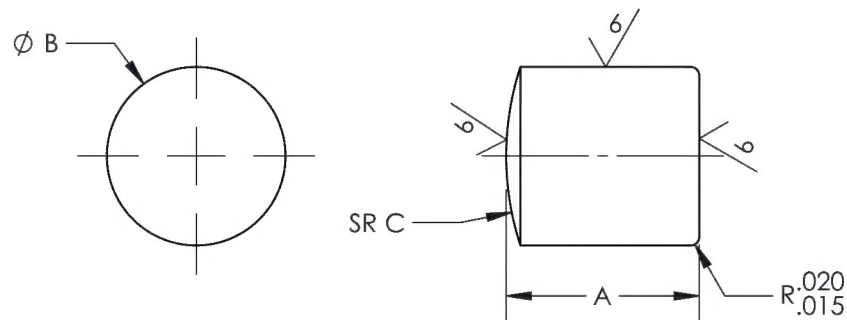
TABLE 2

TOOL #	TYPE	Ø A +.002 -.002	Ø B +.010 -.005	C +.010 -.000	Ø D +.002 -.002	Ø E +.002 -.002	F +.010 -.010	G +.002 -.002	H +.005 -.000	Ø J +.002 -.000	K +.005 -.000	Ø L +.005 -.005	MATERIAL
RBST2001	I	1.235	.507	.030	.136	N/A	N/A	.126	.330	.313	.172	.472	BRONZE
RBST2012	I	1.260	.630	.174	.136	.577	.231	.126	.241	.313	.160	.520	BRONZE
RBST2014	II	2.032	N/A	N/A	.136	N/A	.281	.152	.500	.375	.234	N/A	BRONZE
RBST2015	I	1.895	1.050	.150	.136	1.010	.207	.131	.335	.313	.160	.877	BRONZE
RBST2017	I	1.511	.685	.090	.136	N/A	N/A	.128	.330	.313	.160	.581	BRONZE
RBST2020	I	1.360	N/A	N/A	.136	N/A	N/A	.126	.330	.313	.160	N/A	BRONZE
RBST2058	I	1.285	N/A	N/A	.136	N/A	N/A	.126	.330	.313	.160	N/A	BRONZE
RBST2059	I	1.416	.600	.070	.136	N/A	N/A	.126	.330	.313	.160	.519	BRONZE
RBST2089	I	1.512	.680	.080	.136	N/A	N/A	.126	.330	.313	.160	.588	BRONZE

DART AEROSPACE		
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL		
DWG NO. RBST20##-3	REV 8	
MAT'L BRONZE		
HEAT TREAT FINISH		
SPEC		
DRAWN BY: PERRITT		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1 SURFACES = 125✓ 1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
CHECKED: DUERFELDT		
OPPS APPR: ANDERSON		
QA APPR: LINDSAY		
APPROVED: GILBERT		
SCALE NTS		DATE 3/28/2008
		SHEET 3 OF 9

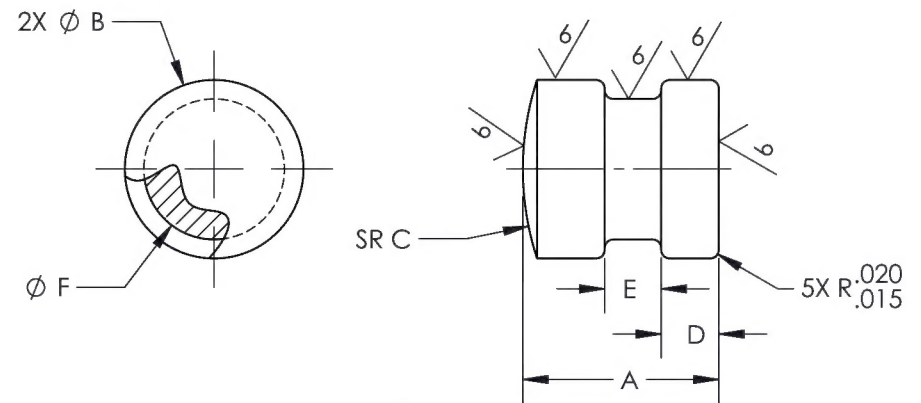
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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s KST2014 & 2015. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012. AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020. ALSO MILL FLAT DIMENSION TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010 TO .015 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE. REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001. AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW Ø.577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE PF CLEARANCE ISSUES WITH BEARING.	11/10/2009	WP	-
8	16-0122	-5 CH'D DIM WAS (R) C SPHER. IS SR C; CH'D TABLE WAS MATERIAL IS B/O INFORMATION OR SPECIFICATIONS.	8/16/2016	SM	JAG



(-5)

ROLLER, TYPE I



(-5)

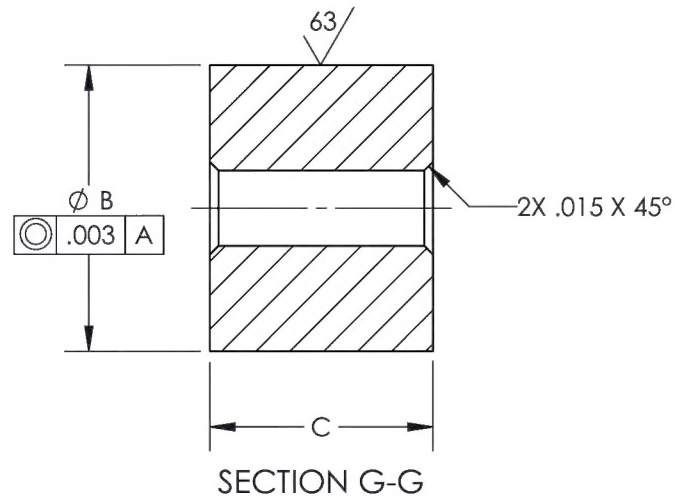
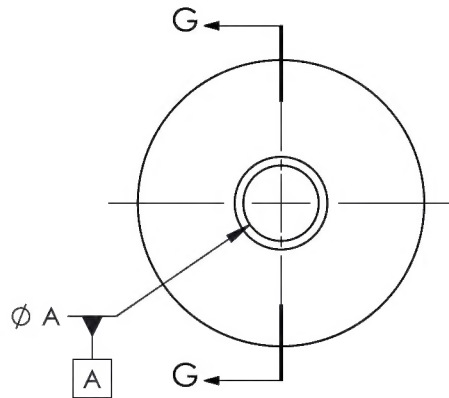
ROLLER, TYPE II

TABLE 3

TOOL #	TYPE	A +.001 -.001	ØB +.001 -.001	RC +.002 -.002	D +.001 -.001	E +.005 -.000	ØF +.000 -.005	B/O INFORMATION OR SPECIFICATIONS
RBST2001	I	.335	.310	.500	N/A	N/A	N/A	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED
RBST2012	I	.251	.310	.500	N/A	N/A	N/A	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED
RBST2014	II	.500	.372	.500	.135	.186	.292	.372 MINUS GAGE PIN (MSC #89037204) MODIFIED
RBST2015	II	.340	.310	.500	.100	.098	.244	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED
RBST2017	I	.335	.310	.500	N/A	N/A	N/A	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED
RBST2020	I	.335	.310	.500	N/A	N/A	N/A	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED
RBST2058	I	.335	.310	.500	N/A	N/A	N/A	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED
RBST2059	I	.335	.310	.500	N/A	N/A	N/A	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED
RBST2089	I	.335	.310	.500	N/A	N/A	N/A	.310 MINUS GAGE PIN (MSC #89031009) MODIFIED

DART AEROSPACE	
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL	
DWG NO. RBST20##-5	REV 8
MAT'L _____ HEAT TREAT _____ FINISH _____ SPEC _____	
DRAWN BY: PERRITT CHECKED: DUERFELDT OPPTS APPR: ANDERSON QA APPR: LINDSAY APPROVED: GILBERT	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1 SURFACES = 125✓ 1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009	
USED ON MODEL	
SEE PG 1	
SCALE 3:1	DATE 8/9/2016
SHEET 4 OF 9	

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s KST2014 & 2017. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE, -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012, AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010, TO .015 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE. REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW Ø.577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE OF CLEARANCE ISSUES WITH BEARING.	11/10/2009	WP	-
8	16-0122	-7 REMOVED NOTE 1 & MATERIAL DIM'S; REPLACED VIEW WITH SECTION VEIW G-G.	8/16/2016	SM	JAG

TABLE 4

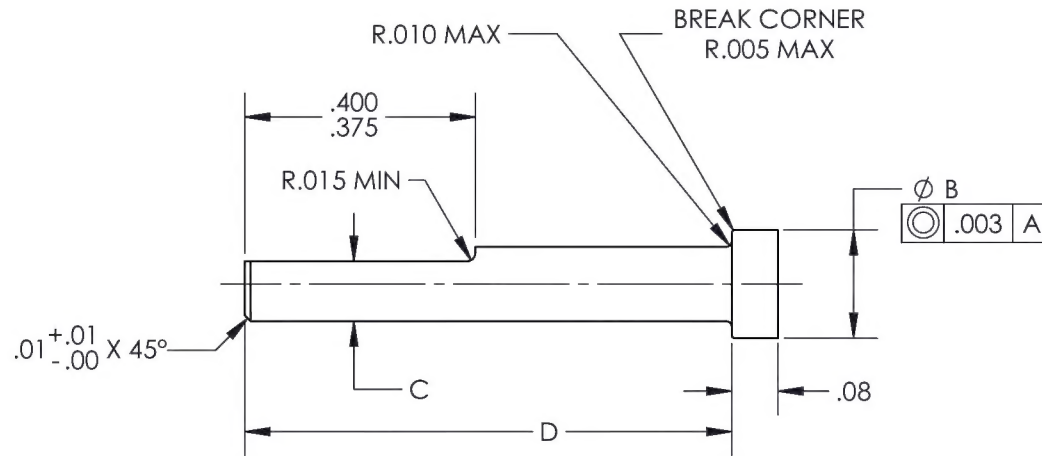
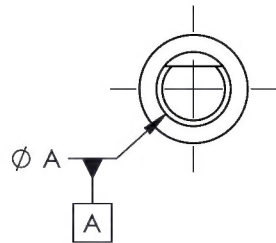
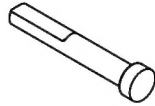
TOOL #	Ø A + .001 - .001	Ø B + .002 - .002	C + .003 - .003	MATERIAL
RBST2001	.131	.245	.250	BRONZE
RBST2012	.131	.310	.312	BRONZE
RBST2014	.131	.497	.240	BRONZE
RBST2015	.131	.497	.387	BRONZE
RBST2017	.131	.372	.312	BRONZE
RBST2020	.131	.310	.250	BRONZE
RBST2058	.131	.310	.250	BRONZE
RBST2059	.131	.310	.312	BRONZE
RBST2089	.131	.310	.330	BRONZE

-7

GUIDE

DART AEROSPACE	
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL	
DWG NO. RBST20##-7	REV 8
MAT'L BRONZE	
HEAT TREAT FINISH	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1 SURFACES = 125✓
SPEC	
DRAWN BY: PERRITT	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
CHECKED: DUERFELDT	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
OPPS APPR: ANDERSON	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
QA APPR: LINDSAY	USED ON MODEL
APPROVED: GILBERT	SEE PG 1
SCALE 3:1	DATE 3/28/2008
SHEET 5 OF 9	

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-9
PIN

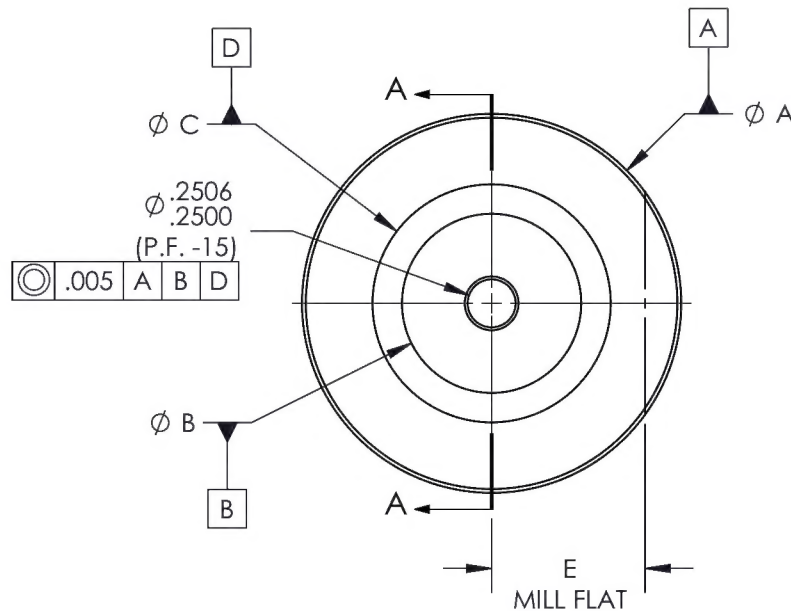
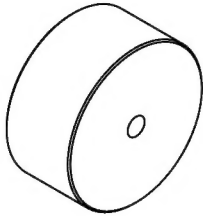
REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s KST2014 & 2015 & 2017. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE, -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012. AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010, TO .015 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE. REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW Ø.577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE OF CLEARANCE ISSUES WITH BEARING.	11/20/2009	WP	-
8	16-0122	-9 REMOVED NOTE 1; CH'D TABLE WAS MATERIAL IS B/O INFORMATION OR SPECIFICATIONS.	8/16/2016	SM	JAG

TABLE 5

TOOL #	ØA +.000 -.001	ØB +.005 -.002	C +.000 -.020	D +.020 -.020	B/O INFORMATION OR SPECIFICATIONS
RBST2001	.129	.188	.104	.926	(MCMaster-CARR #98378A909) MODIFIED
RBST2012	.129	.188	.104	.845	(MCMaster-CARR #98378A909) MODIFIED
RBST2014	.129	.188	.104	.938	(MCMaster-CARR #98378A909) MODIFIED
RBST2015	.129	.188	.104	.938	(MCMaster-CARR #98378A909) MODIFIED
RBST2017	.129	.188	.104	.938	(MCMaster-CARR #98378A909) MODIFIED
RBST2020	.129	.188	.104	.900	(MCMaster-CARR #98378A909) MODIFIED
RBST2058	.129	.188	.104	.938	(MCMaster-CARR #98378A909) MODIFIED
RBST2059	.129	.188	.104	.970	(MCMaster-CARR #98378A909) MODIFIED
RBST2089	.129	.188	.104	.970	(MCMaster-CARR #98378A909) MODIFIED

DART AEROSPACE	
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL	
DWG NO. RBST20##-9	REV 8
MAT'L _____ HEAT TREAT _____ FINISH _____ SPEC _____	
DRAWN BY: PERRITT CHECKED: DUERFELDT OPPTS APPR: ANDERSON QA APPR: LINDSAY APPROVED: GILBERT	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1 SURFACES = 125°	
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING 3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009	
USED ON MODEL	
SCALE 3:1	DATE 3/28/2008 SHEET 6 OF 9

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s KST2014 & 2015 & 2017, ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE, -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012, AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010, TO .010 - 0.20; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE, REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	8/12/2016	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW Ø.577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE OF CLEARANCE ISSUES WITH BEARING.	11/10/2009	WP	-
8	16-0122	-11 REMOVED NOTE 1; CH'D DIM WAS Ø.249 IS .2506/.2500 (P.F. -15), WAS .030/.010X45° (x2) IS 2X .02 X 45°, WAS .020/.010X45° (x2) IS .015 X 45°; CH'D MATERIAL WAS 4140 Q&T IS 4140/4142, RC 28-34.	8/15/2016	SM	JAG

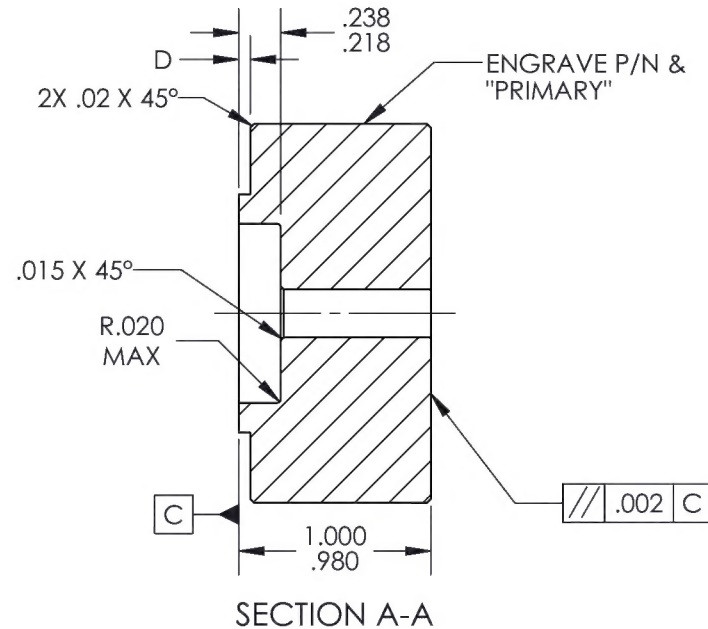


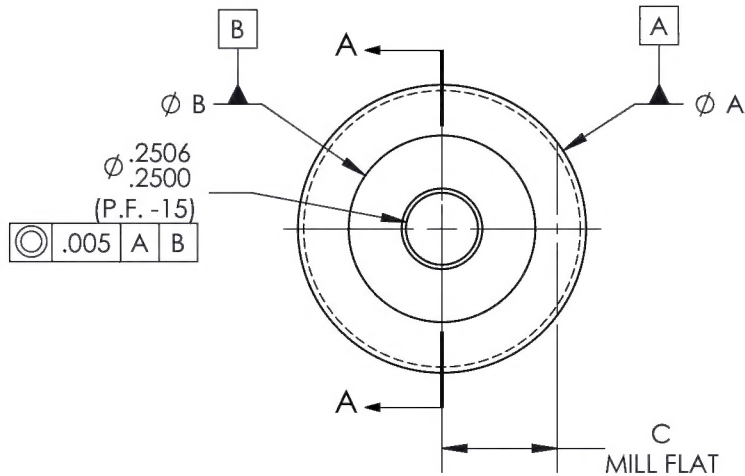
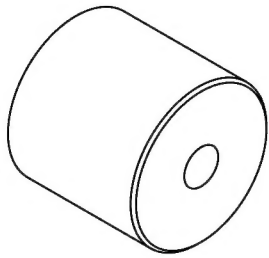
TABLE 6						
TOOL #	ØA + .000 - .020	ØB + .005 - .005	ØC + .002 - .002	D + .002 - .002	E + .005 - .005	MATERIAL
RBST2001	1.000	.648	N/A	N/A	N/A	4140/4142, RC 28-34
RBST2012	1.063	.740	N/A	N/A	N/A	4140/4142, RC 28-34
RBST2014	1.974	.933	1.240	.060	N/A	4140/4142, RC 28-34
RBST2015	1.845	1.143	1.422	.016	N/A	4140/4142, RC 28-34
RBST2017	1.490	.825	N/A	N/A	N/A	4140/4142, RC 28-34
RBST2020	1.250	.600	N/A	N/A	.450	4140/4142, RC 28-34
RBST2058	1.300	.625	N/A	N/A	N/A	4140/4142, RC 28-34
RBST2059	1.485	.760	N/A	N/A	N/A	4140/4142, RC 28-34
RBST2089	1.485	.830	N/A	N/A	N/A	4140/4142, RC 28-34

-11

PRIMARY SEAT

DART AEROSPACE			
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL			
DWG NO. RBST20##-11			REV 8
MAT'L 4140/4142, RC 28-34		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
HEAT TREAT		.XXX ± .005 FRACTIONS ± 1/8	
FINISH BLACK OXIDE		.XX ± .01 ANGLES ± 5°	
SPEC QMSI-6.2.2 REV D		.X ± .1 SURFACES = 125	
DRAWN BY: PERRITT		1. BREAK ALL SHARP EDGES .015 x 45° OR .015R	
CHECKED: DUERFELDT		2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
OPPS APPR: ANDERSON		3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009	
QA APPR: LINDSAY		USED ON MODEL	
APPROVED: GILBERT		SEE PG 1	
SCALE 1:1		DATE 3/28/2008	
		SHEET 7 OF 9	

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s KST2015 & 2015 & 2017. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE, -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS, -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012, AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CJAMGED -5 ROLLER RADIUS FROM .005 - .010, TO .015 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE. REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW .577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE OF CLEARANCE ISSUES WITH BEARING.	11/10/2009	WP	-
8	16-0122	-13 REMOVED NOTE 1: CH'D DIM WAS REAM Ø.249 P.F. -15 IS Ø.2506/.2500 (P.F. -15), WAS .020/.010x45° IS .015 X 45°, WAS .030/.010x45° (x2) IS .02 X 45°.	8/16/2016	SM	JAG

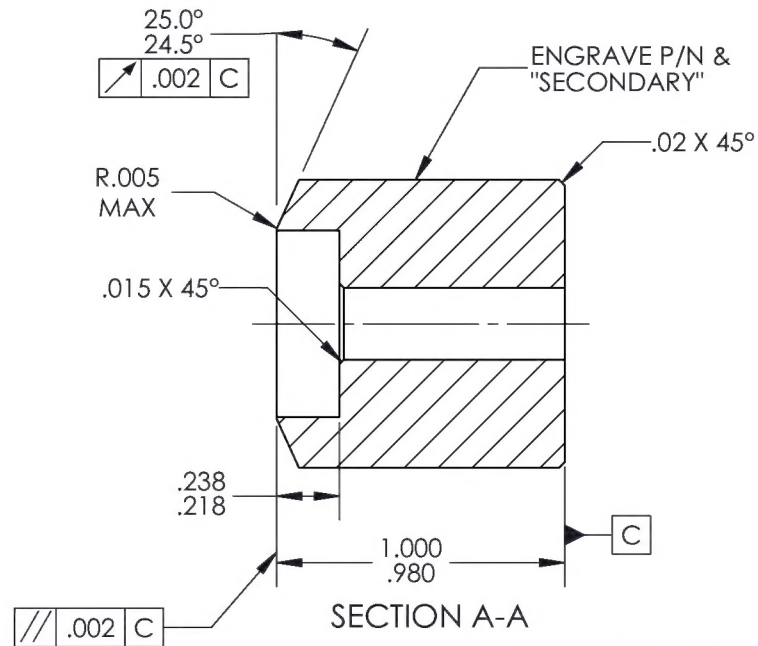


TABLE 7

TOOL #	QTY.	Ø A +.000 -.020	Ø B +.005 -.000	C +.005 -.005	MATERIAL
RBST2001	1	1.000	.648	N/A	4140/4142, RC 28-34
RBST2012	1	1.063	.838	N/A	4140/4142, RC 28-34
RBST2014	0	N/A	N/A	N/A	NOT USED
RBST2015	0	N/A	N/A	N/A	NOT USED
RBST2017	1	1.490	.938	N/A	4140/4142, RC 28-34
RBST2020	1	1.250	.783	.450	4140/4142, RC 28-34
RBST2058	1	1.300	.712	N/A	4140/4142, RC 28-34
RBST2059	1	1.485	.837	N/A	4140/4142, RC 28-34
RBST2089	1	1.485	.938	N/A	4140/4142, RC 28-34

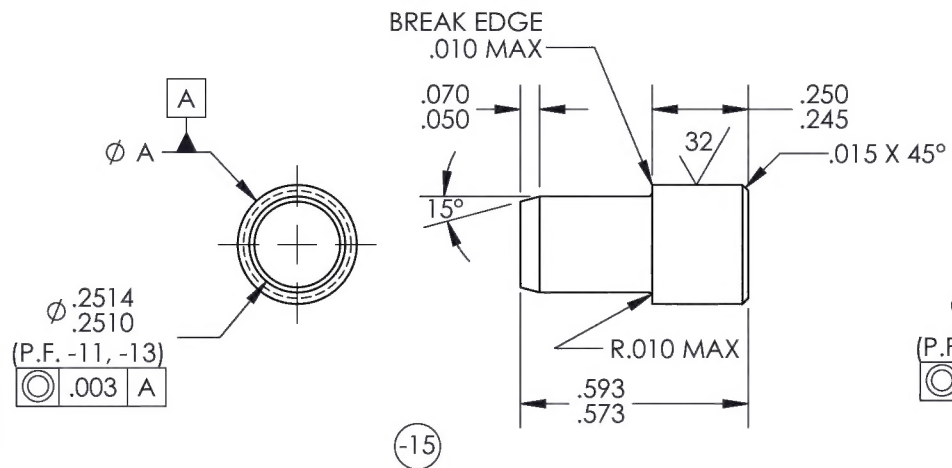
(-13)

SECONDARY SEAT

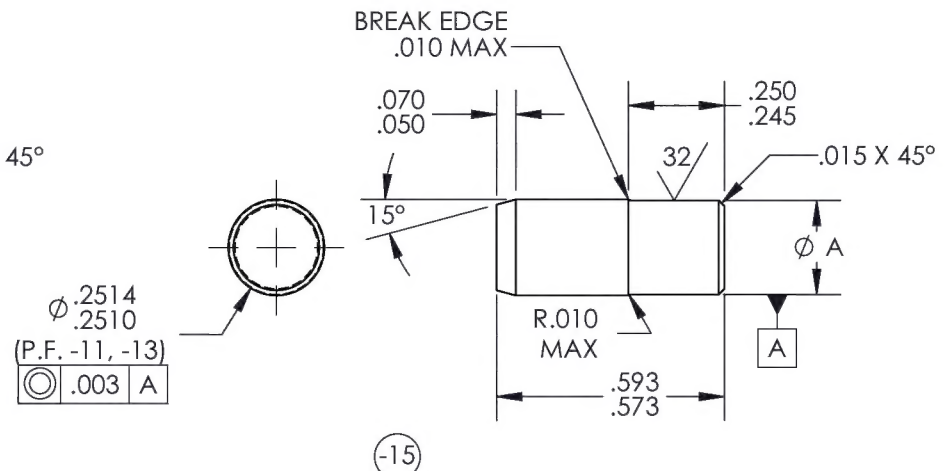
DART AEROSPACE	
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL	
DWG NO. RBST20##-13	REV 8
MAT'L 4140/4142, RC 28-34	
HEAT TREAT FINISH BLACK OXIDE	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1 SURFACES = 125°
SPEC QMSI-6.2.2 REV D	1. BREAK ALL SHARP EDGES .015 x 45° OR .015R
DRAWN BY: PERRITT	2. DIMENSIONAL LIMITS APPLY AFTER PLATING
CHECKED: DUERFELDT	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
OPPS APPR: ANDERSON	USED ON MODEL
QA APPR: LINDSAY	SEE PG 1
APPROVED: GILBERT	
SCALE 3:2	DATE 3/28/2016
SHEET 8 OF 9	

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		ADDED TOOL No.'s KST2014 & 2015 & 2017. ALSO ADDED -1 AUX. VIEW & ASSOCIATED DIMENSIONS WITH "J" DIM., CHANGING FROM .153 TO VARIABLE. -3 TYPE II RETAINER & ASSOCIATED DIMENSIONS. -5 TYPE II ROLLER & ASSOCIATED DIMENSIONS, AND VARIABLE QUANTITY TO -13 & -15 PER TOOL.	4/25/2008	WP	DW
2		ADDED TOOL No. KST2012, AND MADE -9 A VARIABLE LENGTH, WAS .985 TO 1.0.	4/30/2008	WP	DW
3		ADDED TOOL No. KST2020, ALSO MILL FLAT DIMENSIONS TO -11 AND -13 SEATS.	4/30/2008	WP	DW
4		CHANGED -5 ROLLER RADIUS FROM .005 - .010, TO .015 - .020; AND -9 PIN RADIUS FROM .015 MAX., TO .015 MIN. ALSO CHANGED -7 SLEEVE TO -7 GUIDE. REMOVED -1 AUX. VIEW.	7/7/2008	WP	DW
5		ADDED TOOL No. RBST2001, AND CHANGED ALL TOOLS FROM KST TO RBST.	7/30/2009	WP	-
6		CORRECTED RBST2012 ØE, WAS Ø.557 NOW Ø.577; AND ØL, WAS Ø.492, NOW Ø.520; BECAUSE OF CLEARANCE ISSUES WITH BEARING.	8/15/2016	WP	-
8	16-0122	-15 REMOVED NOTE 1, MATERIAL DIMENSIONS; CH'D DIM WAS Ø.250 P.F. -11 & -13 IS Ø.2514/.2510 (P.F. -11, -13), WAS .020/.010x45° IS .015x45°; CH'D MATERIAL WAS 1018 IS 1018/1020 CR.	8/16/2016	SM	JAG



LOCATING PIN, TYPE III



LOCATING PIN, TYPE I

TABLE 8

TOOL #	Ø A	PIN TYPE	QTY.	MATERIAL
RBST2001	.245	I	2	1018/1020 CR
RBST2012	.310	III	2	1018/1020 CR
RBST2014	.497	III	1	1018/1020 CR
RBST2015	.497	III	1	1018/1020 CR
RBST2017	.372	III	2	1018/1020 CR
RBST2020	.310	III	2	1018/1020 CR
RBST2058	.310	III	2	1018/1020 CR
RBST2059	.310	III	2	1018/1020 CR
RBST2089	.310	III	2	1018/1020 CR

DART AEROSPACE	
TITLE RBST2000 SERIES TRI-ROLLER SWAGING TOOL	
DWG NO. RBST20##-15	REV 8
MAT'L 1018/1020 CR	UNLESS OTHERWISE SPECIFIED
HEAT TREAT	DIMENSIONS ARE IN INCHES
FINISH BLACK OXIDE	.XXX ± .005 FRACTIONS ± 1/8
SPEC QMSI-6.2.2 REV D	.XX ± .01 ANGLES ± 5°
DRAWN BY: PERRITT	.X ± .1 SURFACES = 125
CHECKED: DUERFELDT	1. BREAK ALL SHARP EDGES
OPPS APPR: ANDERSON	.015 x 45° OR .015R
QA APPR: LINDSAY	2. DIMENSIONAL LIMITS APPLY
APPROVED: GILBERT	AFTER PLATING
SCALE 2:1	3. INTERPRET DIM AND TOL PER ASME Y14.5M-2009
DATE 3/28/2016	USED ON MODEL
SHEET 9 OF 9	SEE PG 1